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10/537,031	05/31/2005	Joel P Dunsmore	10030978-3	1134

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EXAMINER	
MERANT, GUERRIER	
ART UNIT	**PAPER NUMBER**
2117	

NOTIFICATION DATE	DELIVERY MODE
03/04/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

Office Action Summary	Application No.	Applicant(s)	
	10/537,031	DUNSMORE ET AL.	
	Examiner	Art Unit	
	Guerrier Merant	2117	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the Appeal Brief filed on 12/10/07, PROSECUTION IS HEREBY REOPENED. The new grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

2. Claims **1-32** have been examined and are pending.

Response to Amendment

3. Applicant's arguments/amendment, with respect to claims 1-14 and 21-31, have been fully considered but they are moot in view of the new ground of rejections.

Allowable Subject Matter

4. The indicated allowability of claims 15-20 and 32 is withdrawn in view of the newly discovered reference(s) to **Kamitani (US 2004/0183542 A1)**. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-14 and 21-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Dunsmore (US 6,643,597 B1)** and further in view of **Kamitani (US 2004/0183542 A1)**.

Claims 1, 4-5, 26-28: **Dunsmore** teaches a method of transforming/matching measurements of a device under test (DUT) produced by a test system, the method comprising: creating a calibration array and measuring a performance of the DUT using the test system *(col. 14, lines 61-67 & col. 15, lines 1-13);* applying the calibration array, such that the measured DUT performance approximates a hypothetical DUT performance for the DUT mounted in the first test fixture and measured with the test system *(col. 7, lines 55-67 & col. 8, lines 22-40).*

Not explicitly teaching by ***Dunsmore*** *is* determining a port-specific difference array, the difference array describing a difference between a first test fixture and a

second test fixture at a corresponding test port of the test fixtures measuring a performance of the DUT using the test system, wherein the DUT is mounted in the second test fixture. However, **Kamitani** teaches a method of transforming/matching measurements of a device under test (DUT) produced by a test system comprising determining a port-specific difference array, the difference array describing a difference between a first test fixture (e.g. item 5A, fig. 1) and a second test fixture (e.g. .item 5B, fig. 1) at a corresponding test port of the test fixtures measuring a performance of the DUT using the test system, wherein the DUT is mounted in the second test fixture (e.g. [0085-0087). Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the method of ***Dunsmore*** with the one taught by **Kamitani** in order to provide high calibration accuracy and to satisfy multi-port requirements (e.g. [0014]; **Kamitani).**

Claims 2-3, 11, 13: **Dunsmore** and **Kamitani** teach a method of transforming measurements as in claim 1 above, wherein the determined port-specific difference array is an error adaptor that is applied to the measured performance of the DUT to essentially remove an effect of a port portion of the second test fixture and to add an effect of a corresponding port portion of the first test fixture on the measured performance *(col. 14, lines 61-67 & col. 15, lines 1-13 & col. 18, lines 55-67 & col. 19, lines 1-10, Dunsmore; [0096-0097], Kamitani).*

Claim 6: **Dunsmore** and **Kamitani** teach a method of transforming measurements as in claim 1 above, wherein a performance of one or both of the first test fixture and the second test fixture and a performance of one or more calibration standards of the set used in determining the port-specific difference array are unknown or poorly known *(col. 6, lines 48-57, Dunsmore).*

Claim 7: **Dunsmore** and **Kamitani** teach a method of transforming measurements as in claim 1 above, wherein determining employs measurements of the test fixtures at a plurality of frequencies in a frequency range of interest for the DUT *(col. 7, lines 33-51, Dunsmore).*

Claim 8: **Dunsmore** and **Kamitani** teach a method of transforming measurements as in claim 3 above, wherein the calibration standards of the set connect corresponding pairs of ports to one another for each test fixture, such that all combinations of ports in each test fixture are separately connected as pairs for measuring the characteristics *(col. 12, lines 5-21, Dunsmore).*

Claims 9, 27: **Dunsmore** and **Kamitani** teach a method of transforming/matching measurements as in claims 3 and 27 above, wherein measuring comprises: measuring a reflection parameter of each standard of the set of calibration standards separately for each port of the first test fixture; and measuring a reflection parameter of each standard

of the set of calibration standards separately for each corresponding port of the second test fixture, wherein one or more of the standards of the set isolate the respective port from other ports of the respective test fixture *(col. 12, lines 21-39, Dunsmore).*

Claim 12: **Dunsmore** and **Kamitani** teach a method of transforming measurements as in claim 3 above, wherein solving for elements comprises: optimizing a model using the measured results for each test fixture, the model representing one or more of the port-specific difference arrays, wherein optimizing comprises adjusting parameters of the model until a difference between test fixture measurements is minimized, the test fixture measurements being converted measurements of the second test fixture produced by the model using the measured results for the second test fixture and the measured results for the first test fixture, the model parameters representing the elements of the difference array *(col. 8, lines 1-35, Dusmore).*

Claims 14, 29-31: **Dunsmore** and **Kamitani** teach a method of transforming/matching measurements as in claims 3 and 26 above, wherein solving for elements of the difference array comprises determining a complex square root of one of the elements, wherein the square root is determined using data representing the element at more than one frequency *(col. 13, lines 51-62, Dunsmore).*

Claims 21-22: **Dunsmore** teaches a test system that measures a device under test (DUT) using different test fixtures comprising: test equipment *(item 410, fig. 5)*; a test fixture that interfaces the DUT to the test equipment *(item 430, fig. 5)*; a computer connected to receive and process data from the test equipment *(item 440, fig. 5)*; and a computer program *(item 530, fig. 6)* executed by the computer. Not explicitly teaching by **Dunsmore** is that the computer program comprising instructions that, when executed by the computer, implement determining a port-specific difference array that adjusts for a difference between a first test fixture and a second test fixture when each is used to interface the DUT for measurements. However, **Kamitani** teaches a test system that measures a device under test (DUT) using different test fixtures comprising a computer program comprising instructions that, when executed by a computer, implement determining a port-specific difference array that adjusts for a difference between a first test fixture and a second test fixture when each is used to interface the DUT for measurements (e.g. [0085-0087). Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement the system of ***Dunsmore*** with the one taught by **Kamitani** in order to provide high calibration accuracy and to satisfy multi-port requirements (e.g. [0014]; **Kamitani).**

Claim 23-24 **Dunsmore** and **Kamitani** teach a test system as in claim 22 above, wherein the instructions that implement applying comprise applying the difference array directly to the measured performance of the DUT produced by the test system to

transform the measured DUT performance into the hypothetical DUT performance *(col. 7, lines 55-67 & col. 8, lines 22-40).*

Claim 25: **Dunsmore** and **Kamitani** teach a test system as in claim 21 above, wherein the computer program further comprises instructions that implement determining a complex square root of an element of the difference array using values of the element at a plurality of frequencies *(col. 13, lines 51-62).*

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 15-20 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by **Kamitani (US 2004/0183542 A1)**.

Claim 15: **Kamitani** teaches a method of calibrating a test system for more than one test fixture, the method comprising: measuring parameters of a first test fixture (e.g. standard test fixture 5a ,fig. 1) having a calibration standard mounted in the first test fixture, measuring being performed using the test system connected to the first test

fixture and measuring parameters of a second test fixture (production test fixture 5B, fig. 1) having the calibration standard similarly mounted in the second test fixture, measuring being performed using the test system connected to the second test fixture (e.g. [0087-000091]); and adjusting a calibration of the test system using differences between the measured parameters for corresponding ports of each test fixture, wherein the adjusted calibration is a port-specific calibration of the test system such that measurements taken with the test system for a device under test (DUT) in either test fixture approximate each other (e.g. [0085-0086], [0096-0097]).

Claim 16: **Kamitani** teaches the method of calibrating as in claim 15 above, wherein measuring parameters of the first test fixture and the second test fixture comprises: mounting a calibration standard to connect between a corresponding pair of ports of each test fixture and measuring parameters for each corresponding pair of ports of the test fixtures using a set of calibration standards, a different standard connecting a different corresponding pair of ports for each measurement, wherein at least one of the calibration standards of the set is a thru standard (e.g. [0095-0097]).

Claim 17: **Kamitani** teaches the method of calibrating as in claim 15 above, wherein adjusting comprises: determining a port-specific difference array for each port of the second test fixture from results of measuring parameters, the port-specific difference array representing an error adaptor that transforms the measurements of the

DUT in the second test fixture into measurements of the DUT as if measured with the first test fixture (e.g. [0098-0099]).

Claims 18-19: **Kamitani** teaches the method of calibrating as in claim 17 above, wherein determining comprises: constructing a port-pair model of the second test fixture with a specific error adaptor attached to each port of a pair of ports and a thru calibration standard mounted in the second test fixture connecting the pair of ports, such that a separate model is constructed for each pair of ports of the second test fixture, each port-pair model converting a respective measured parameter into a corresponding converted measured parameter of the second test fixture and optimizing the port-pair model for each pair of ports of the second test fixture such that the converted measured parameters approximate the measured parameters of the first test fixture (e.g. [0019], [0095-0099]).

Claim 20: **Kamitani** teaches the method of calibrating as in claim 15 above, wherein measuring parameters comprises measuring at a plurality of frequency points in a frequency range of interest for the DUT (e.g. [0078], [0106], [0111]).

Claim 32: **Kamitani** teaches a method of calibrating a test system for more than one test fixture comprising: connecting the test system to a first and second test fixtures (e.g. standard test fixture 5A & 5B ,fig. 1); measuring parameters of the first test fixture according to a calibration standard; connecting the test system to a second test fixture,

measuring parameters of the second test fixture according to the calibration standard and calculating a set of calibration factors according to the measured parameters of the test fixtures (e.g. [0087-000091]); and adjusting the test system according to the calibration factors such that a measurement of a device under test (DUT) yields approximately the same result regardless of which of the two test fixtures is utilized in the DUT measurement (e.g. [0085-0086], [0096-0097]).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Exr. Merant Guerrier whose telephone number is (571) 270-1066. The examiner can normally be reached Monday through Thursday from 10: 30 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis Jacques, can be reached on (571) 272-6962. Draft or Informal faxes, which will not be entered in the application, may be submitted directly to the examiner at (571) 270-2066.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Guerrier Merant
02/21/08

/JACQUES H LOUIS-JACQUES/

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